DOCUMENT RESUME

ED 170 657 CG 013 458

AUTHOR McConnel, Charles E.; Lenet, Joseph
TITLE A Statistical Theory of Age-Discrimination in Employment.
PUB DATE Nov 78
NOTE 22p.; Paper presented at the Conference of the Gerontological Society (30th, San Francisco, California, November, 1978)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Age Groups; Civil Rights; *Employment Trends; *Equal Opportunities (Jobs); Labor Market; *Manpower Utilization; *Middle Aged; *Social Discrimination; Theories; *Unemployed

ABSTRACT

A tentative theory of age-discrimination is indirectly tested through labor statistics concerning the duration of unemployment. After first reviewing the inadequacies and inapplicability of sex and race discrimination hypotheses derived from the conventional economic models, this analysis synthesizes statistical models of discrimination to explain the negative correlation between age and the duration of unemployment. Under a quasi-experimental model for the varying levels of overall economic activity over the period studied, a statistical explanation is provided for the relative stability in age-related unemployment duration differences and a paradoxical relationship to the general unemployment rate. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED170657

Preliminary; not for quotation or citation

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Charles E. McConnel

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

A STATISTICAL THEORY OF AGE-DISCRIMINATION IN EMPLOYMENT

Charles E. McConnel

and

Joseph Lenet

Gerontological Services Administration Program
University of Texas Health Science Center at Dallas
5323 Harry Hines Boulevard
Dallas, Texas

Presented at 31st Annual Scientific Meeting,
Gerontological Society. Dallas, Nov. 17, 1978

CG013458

A STATISTICAL THEORY OF AGE DISCRIMINATION IN EMPLOYMENT

Why, we must inquire, in light of the impressive body of research evidence on the productivity, dependability and other desirable attributes of the older worker, are employers found to be so reticent in the hiring and placing the unemployed worker fourty-five years old and over? Surely it has not escaped the attention of the employer, that in addition to productivity considerations, the older worker also serves in the capacity as an on-the-job trainer of the younger work force, a model of dependability and safety and adherent to the more positive tenets of the work ethic. Yet, with reference to any number of employment status indicators, the denial of employment opportunities appears to be widespread. Berkowitz and Burkhauser (1969), Batten (1975), Sheppard (1977), Flanagan (1978), and Barrett and Morgenstern (1974) have with a variety of techniques, provided support for the thesis of general age-discrimination in hiring, placement, promotion and lay-offs. The phenomenon has been observed to exist not only in the private economy, but the public sector as well (Long, 1976). In varying degrees, it exists worldwide (Boglietti, 1974).

Age-discrimination has been legislated against under the Age Discrimination in Employment Act of 1967 and 1978 amendments. Enforcement activities of the Department of Labor, Employment Standards Administration (ESA) and adjudication in the courts is testimony of the public concern and condemnation of those who engage in this form of discriminatory activity. Even on the basis of rather meager enforcement resources, the (ESA) is able to report that discrimination on the basis of age is becoming increasingly costly (Table I).

TABLE I

ACTIVITIES UNDER THE ACT DURING 1969-1976

FISCAL YEAR	COMPLAINTS RECEIVED	INDIVIDUALS			JOB OPPORTUNITIES MADE AVAILABLE
		DISCRIMINATED AGAINST	DUE DAMAGES	AMOUNT FOUND DUE $(000)	
1969	1,031	NA	48	$ 39	NA
1970	1,344	NA	131	129	NA
1971	1,658	NA	655	738	NA
1972	1,862	NA	964	1,650	NA
1973	2,208	14,386	1,031	1,866	39,667
1974	3,040	3,800	1,678	6,315	84,207
1975	4,717	5,540	2,350	6,574	27,217
1976	5,121	12,951	1,908	8,631	31,964

Source: (DOL, Jan. 19, 1977:78)

The problem of age-discrimination in employment is a complex of issues which economists have for the most part, avoided examining. A considerable distance must be traversed between the sociological models which depict ageism as culturally systemic and on a par (in form if not extent) with racism and sexism, to the economists' paradigm of rational but impersonal decisions under the enforcement of competitive markets. (Palmore and Manton, 1973; Dowd, 1975; Stiglitz, 1973). The presumption of ageism in the aging literature simply has not carried over into the economists' discussion of explicit forms of sex and race discrimination (Clark, Kreps and Spengler, 1978). Economic analysis on a system-wide basis has been meager (Sobel and Wilcox, 1963; Sheppard and Belitsky, 1966; Berkowitz and Burkhauser, 1969; Mc Connel, 1977), and less than conclusive on the question of age as the sole discriminator. As is the case in other areas of social gerontology, it remains unclear from this literature the extent to which the identification of age-discrimination is confounded by a host of other social, economic, demographic and vintage effects.

Our interest in the present study is to develop additional evidence which bears indirectly on the question of the extent to which ageism alters labor market outcomes. Our focus is restricted to only one facet of labor market discrimination-differential treatment in hiring and placement on the basis of age.

Following a brief discussion of alternative economic models developed to explain persistent race and sex wage differentials, we adapt a statistical model of discrimination to partially explain equally persistent differentials in the duration of unemployment between young mature and older workers. By following

the cyclical change in the unemployment duration ratio over a period of eighteen years, we establish a peculiar regularity in this discrimination ratio which is difficult to explain under the typical age-stereotyping or age-prejudice assumption. A provisional explanation under a statistical discrimination model is then provided as an alternative interpretation of the evidence.

II.

Within the context of relatively competitive markets (a conventional assumption in neoclassical economics), discrimination which rests on any other than strictly economic considerations is virtually impossible to explain. The unrelenting avarice of the typical corporate enterprise is presumed to assure that differentials, when and where they occur without economic foundation, will soon be discovered and exploited as profitable opportunities. Hence, conjectures and theories which rely on mistakes, stereotyping or erroneous beliefs on the part of all employers, have not been found to be particularly convincing as explanations of observed differential treatment on the basis of sex and race, as well as age. The fact that differentials do exist, however, has required the development of explanatory models which vary from the neo-classical paradigm.

On the observation that discriminatory behavior normally manifests itself in establishing, maintaining and increasing the social, economic or physical distance between various groups, many economists vary only marginally from the traditional theory, by identifying the elements of self-interest which might motivate such behavior (Becker, 1971; Arrow, 1971). By incorporating discriminatory preference through "taste for discrimination" in an analytical choice function, those who discriminate are assumed to gain some form of satisfaction from their

activity but only at a certain cost which is evidently incurred by both parties. While the "taste" model has generated a great deal of discussion and elaboration (as well as acrimony), it has generally been found to be inadequate as an explanation of the observed outcomes (Stiglitz, 1973). Considering the degree of integration of the elderly into the broader culture, it seems especially unsuitable as an explanation of the age variable.

A somewhat more successful group of models utilize the various properties of market imperfections and general social inequities to explain differentials. Such models examine the implications of monopoly behavior of the firm and unions, disequilibrium in the labor markets and the effects of pre-market discrimination experienced in the general social environment wnich discourages or prevents certain groups from acquiring the characteristics required for effective competition in the market for economic opportunities (Stiglitz, 1973). But again, relevance to the population of experienced older workers appears to be relatively limited.

More recently, several types of statistical decision models have been used to examine the implications of uncertainty inherent in accessing the expected productivity of the potential employee. In instances where information on group membership enters the evaluation process, a number of rather interesting results are obtained (Phelps, 1972; Spence, 1973; Thurow, 1976; Aigner and Cain, 1977). Of particular interest to our research is the Phelps model and its clarification by Aigner and Cain. Prospective employees are assumed to be evaluated on the basis of some form of productivity related test and are placed (or assigned a wage) in accordance with expected productivity, conditional on

the test score. Arguments in the placement function include average productivity of the respective groups (which may be assumed equal) and test scores, while the function's coefficients are determined by the variance in productivity and measurement errors. Differences in the variances which may exist between groups result in greater or less reliability in estimation of an appropriate decision. Predicted values of productivity which are relevant to the employment decision are shown to vary between individuals (from different groups) with similar scores; hence, discriminatory treatment on the basis of group membership.*

While the statistical model has been shown to be of questionable value in explaining the cause of group wage differentials, we will argue that under a plausible characterization of older workers as a group, the model may be suitable for an explanation of apparent discrimination in the hiring and placement of the older worker applicant.

III.

Of the available indicators of occupational discrimination against elderly workers, group unemployment rates and duration of unemployment appear to have provided the most interesting basis for analysis and relevant comparisons (Batten, 1975 ; Berkowitz and Berkhauser, 1969). Using the probability of unemployment for various age groups as an estimate of differential treatment, Berkowitz and Berkhauser (1969), establish that when appropriate adjustments are made for group difference in a number of productivity related variables, age explains a certain though relatively small portion of the differences in group unemployment

*Aigner and Cain (1977), in effectively criticizing the Phelps model as it applies to racial wage differentials, demonstrate that group discrimination is not implied by the model as wage losses for test scores on one side of the group mean are balanced by differential wage gains for test scores on the other side of the mean. In our adaption in Section III, we believe we overcome the effects of counterbalancing.

rates. Less systematically, Batten uses average duration in weeks unemployed to show considerable disparity between old and young workers in recent years.

If unemployment rates and duration are to be utilized in an index of discrimination, their relationship and related research findings must be noted. Given a steady state flow into and out of unemployment, an increase in average duration for an age or race group increases the group unemployment rate. Quits and lay-offs constitute the outflows, thus the higher the proportion of each outflow which results in a spell of unemployment, also increases the group unemployment rate. Significantly, variations in unemployment rates between races and sexes have been shown to be a consequence of substantial differences in turnover or the higher probability of unemployment spells associated with females and blacks (Barrett and Morgenstern, 1974). At the same time, relative equality in unemployment duration often exists between races while unemployment rates for blacks are twice that of whites. (Flanagan, 1978). Further, while the probability of a spell of unemployment following lay-off has been found to be equal for older blacks and white workers, it is three times as large as that for younger workers and twice that of younger workers for "quits." (Flanagan, 1978). Relative equality in unemployment rates and duration differentials between young mature and older workers presents a rather striking contrast to similar duration and substantial unemployment differences between blacks and whites. It seems highly unlikely that the discriminatory mechanisms underlying these outcomes are similar.

To provide empirical support for the notion of systemic age-discrimination in employment (ageism in the labor market) we propose to develop an index of potential discrimination from aggregate labor market data and examine its behavior under varying economic conditions. As an index of the probable consequence of discriminatory behaviors, we have chosen to construct the ratio of short and long term unemployment duration for older to younger mature workers, and systematically examine the impact of labor market conditions on this ratio over the period 1959 to 1978. In order to clarify the effect of cyclical changes in overall economic activity on the ratio, values are detrended and the aggregate unemployment rate is utilized to evaluate the impact of a generally tight or loose labor market on the respective age groups. As a proxy for age-balance in the labor force and as a (less satisfactory) control for attrition of older workers into voluntary or involuntary retirement, we include the ratio of older labor force to younger labor force. Finally, the ratio of unemployment rates for the respective groups provides some control for the relationship between unemployment rates and duration.

The basic statistical models to be estimated are:

(1) $STUOY = a + bU + cUROY + dLFOY + eT + e_i$

(2) $LTUOY = a' + b'U + c'UROY + d'LFOY + e'T + e_i$

Where

STUOY = Ratio of % unemployed 15 to 27 weeks, for unemployed workers 45-64 years of age to unemployed workers 24-44 years of age, for males.

LTUOY = Ratio of % unemployed 27 weeks and over, for unemployed workers 45-64 years of age to unemployed workers 24-44 years of age, for males.

U = Overall unemployment rate

UROY = Ratio of older to younger group unemployment rates, for males.

LFOY = Ratio of size of older to younger labor force, for males.

T = A trend variable

e_i = An error term.

Our expectations for the model are drawn from labor theory and empirical findings in relevant labor market studies. We take some care in setting forth these expectations in anticipation of the contradictory evidence to be reported from our estimation of the model.

First, and of primary importance is the response of unemployment duration to cylical changes in labor market activity. Expectations of a positive

relationship between cyclical changes in aggregate demand for labor (indicated by variation in U) and the ratio of unemployment durations (STUOY and LTUOY) rests on the following considerations:

1. As labor market conditions worsen during a recession, opportunities to discriminate become increasingly available and the effectiveness of discriminatory behavior (on any basis) in lay-offs and hiring should also increase. To the extent that age-discrimination is a wide-spread practice, unemployment duration for older workers should rise relative to younger workers as the general level of unemployment increases.

2. Increasing general unemployment is generally accompanied by a tightening of job qualification standards. A lower average level of educational attainment of the older relative to the younger (mature) labor force places the older worker at a competitive disadvantage in the rehiring process (Thurow, 1975; 155ff.). This is analogous to the situation of the unskilled in recessionary periods (Perlman, 1969; 92ff.)

3. The greater likelihood of a favorable unemployment insurance pay-off for the older experienced worker may lead to increased delay of reentry (Ehrenburg and Oaxaca, 1976).

4. An unrealistically high reservation wage which functions as a decision rule for acceptance or rejection of the wage offer may prolong the spell of unemployment for the older worker (Sobel and Folk, 1965).

5. "In times of recession (older workers) may be the first to be laid off and the last to be taken on again when the economy picks up, because of discrimination on the grounds of age . . . but also because they lack necessary skills and live in a depressed area which their reduced mobility makes it harder to leave." (Boglietti, 1974:355).

6. The possibility of accumulated savings of the older worker which sustains a longer but more productive search for suitable alternative employment.

7. An inference to be drawn from the higher probability for older relative to younger worker that lay-offs will result in a spell of unemployment (Flanagan, 1978) combined with the evidence of only a marginal difference in the "discouraged worker" effect between the two groups (Barth, 1968:378, 380).

Over all, the non-discrimination hypothesis would find considerable support in the statistical null, $H_o : b = o$, while the discriminatory alternative would receive partial support under $H_A : b > o$.

The intercept (a) is expected to be greater than unity under hypothesized discrimination, but concurrence with the expectation is neither a necessary nor sufficient condition for establishing the presence of age-discrimination. Interpretation of its value under the limited control we have been able to establish for productivity related difference, remains ambiguous.* This must also be true for a difference between (a) and (a').

The relationship between group unemployment rates and group duration rates suggests that the coefficient for (UROY), i.e., (c), will be positive. No inference is drawn for the control (LFOY).

Considerations on the pace of technological change over the past years and human capital obsolesence generally associated with such change leads to an inference that the secular trend variable (T) will be positively associated with (STUOY) and (LTUOY). This expectation is further strengthened by the secular rise in the overall level of educational attainment of the labor force, implying that older workers have been pushed further into the lower tail of the educational distribution.**

* Flanagan (1978) has shown race difference in duration to be trivial under a presumption of race discrimination and Berkowitz and Burkhauser (1969) have established that differences in human capital and other productivity augmenting variables are a major source of differential labor market statue.

** From the relationship of marginals to averages, we can conclude that a rising level of average educational attainment implies that the educational level of the marginal cohort of workers entering the work force must exceed the average, provided, of course, that there is no substantial continuation in the education of the older work force.

The hypotheses concerning the relationship between the unemployment duration ratios and the selected variables were estimated using nineteen years of unadjusted monthly data (DOL, 1959-1978). Estimated equations follow:

(1') STUOY = 1.12 - 10.1 U - .004 UROY + 1.08LFOY - .005T

(4.9) (.04) (1.47) (2.05)

STUOY Mean = 1.33 U Mean = .049 UROY Mean = .96

R^2 = .28, N = 220, ( ) t values.

F = 20

(2') LTUOY = 3 - 7.4U + .05LFOY - .003T

(2.4) (.08) (6.9)

LTUOY Mean = 1.83 U Mean = .049

R^2 = .40; N = 181, ( ) t values.

F = 39 . NOTE: UROY could not be estimated.

In equation (1'), U is significant at the .01 - level and T at the .05 level. In equation (2') U and T are significant at the .01 level. All other coefficients exceed conventional levels.*

*Because of the evidence of first order auto-correlation, the equation was re-estimated using a Yule-Walker procedure. The absolute values of all variables were found to increase and all signs remained the same. The equation was also estimated using yearly averages over the same period. Signs of the coefficients were similar and an R^2 = .90 was obtained, suggesting data smoothing would increase the R^2.

Virtually none of the hypothesized relationships are met in either equation (1') or (2'), however, all significant coefficients with the exception of the cyclical variable U are too small to be of much interest.

Unexpectedly, the coefficient of U is negative and quite significant. As labor market conditions worsen, the relative disadvantage of the older worker appears to diminish, both in terms of short and long spells of unemployment. At average values short term unemployment for older and younger mature workers, as a percent of their respective group unemployment levels becomes equal at a general unemployment rate of 8.3%.

The coefficient for the general unemployment variable differs significantly from zero ($b < 0$), ($b' < 0$), thus we reject the no-discrimination hypothesis, but are left in the confusing position of accepting a negative relationship which contradicts our expectations. Further, average values of STUOY and LTUOY, being greater than one, weakly implies discrimination but not without ambiguity.

In the following section, we will briefly discuss a possible interpretation of the relationships established in our empirical analysis.

IV

We have found that over the course of expansions and contractions in general economic activity, the older worker is relatively better off in times of worsening economic conditions, i.e., the differential in unemployment duration for the old relative to the young decreases. Since we have been unable to anticipate the differential in the contractionary phase of the cycle (the lay-off phase), in this section we attempt to work in the expansionary direction (the rehiring) phase. A complete and consistent hypothesis, should, of course, be capable of explaining variations over all phases of the cycle.

In order to explain reticence in the rehiring decision, we introduce (at the most casual level), the notion of a statistical decision function which reflects a degree of uncertainty in evaluating both older and young workers (Phelps, 1972; Aigner and Cain, 1977). Suppose that expected productivity of the applicant is evaluated on the basis of a productivity related test, and the measurement function is:

$$t = p + u \tag{3}$$

where the test score (t) is an indicator of the true productivity (p) and (u) is a normally distributed error term. For the function of the respective age groups, (p) is equal to (a), the group mean productivity. Of interest to the prospective employer is the expected value of (p) given the test score (t), which can be formed as a conditional expectation under a linear population regression function:

$$p = (1-h)a + ht + u' \tag{4}$$

where (a) is the group mean productivity, (h) is the hiring coefficient and (u') in a normally distributed error. Phelps (1972) and Aigner and Cain (1977) derive the hiring coefficient (h) as:

$$h = \frac{Var(p)}{Var(p) + Var(u)} = \text{slope of the hiring function.} \tag{5}$$

and $0 < h < 1$

Now consider that prospective applicants are divided into two groups on the basis of falling into one of the age groups under forty-five years old and equal to or older than fourty-five. Their respective employment placement functions are:

$$(6) \qquad p^o = (1-h^o)a^o + h^o t^o$$

$$(7) \qquad p^y = (1-h^y)a^y + h^y t^y$$

where superscripts (o) and (y) are for older and younger workers, respectively.

Assume that the average productivity of the two groups is equal, ($a^o = a^y$), but that to the extent individual differences in productivity can be expected to increase with age, the variance of productivity is greater for older relative to younger workers; i.e.,

$$Var(p^o) > Var\ (p^y).**$$

*In the analysis of Phelps, Aigner and Cain, the functions are expected productivity based wage functions. This literature, especially Aigner and Cain (1977) should be examined for a complete description and explanation of the statistical properties of the models.

**We take it that this is not a particularly controversial assumption (Clark; Kreps and Spengler, 1978:927). There is though the arguable problem of what it is that is being measured (Heneman, 1974).

Assuming that the employer has noticed no difference in average group performance for older and younger mature workers in the past, $(a^o = a^y)$, the respective slopes of the two functions will, according to the hiring coefficients (h) from the variance derivation (3), differ as follows:

$$h^o = \frac{Var(p^o)}{Var(p^o) + Var(u)} > \frac{Var(p^y)}{Var(p^y) + Var(u)} = h^y,$$

intersecting at $(a^o) = (p^o) = (p^y) = (a^y)$.*

We depict this in Graph I. For test scores below (a^i), younger workers have a greater probability of being placed, e.g., at t_o. The opposite is true for scores above (a^i).

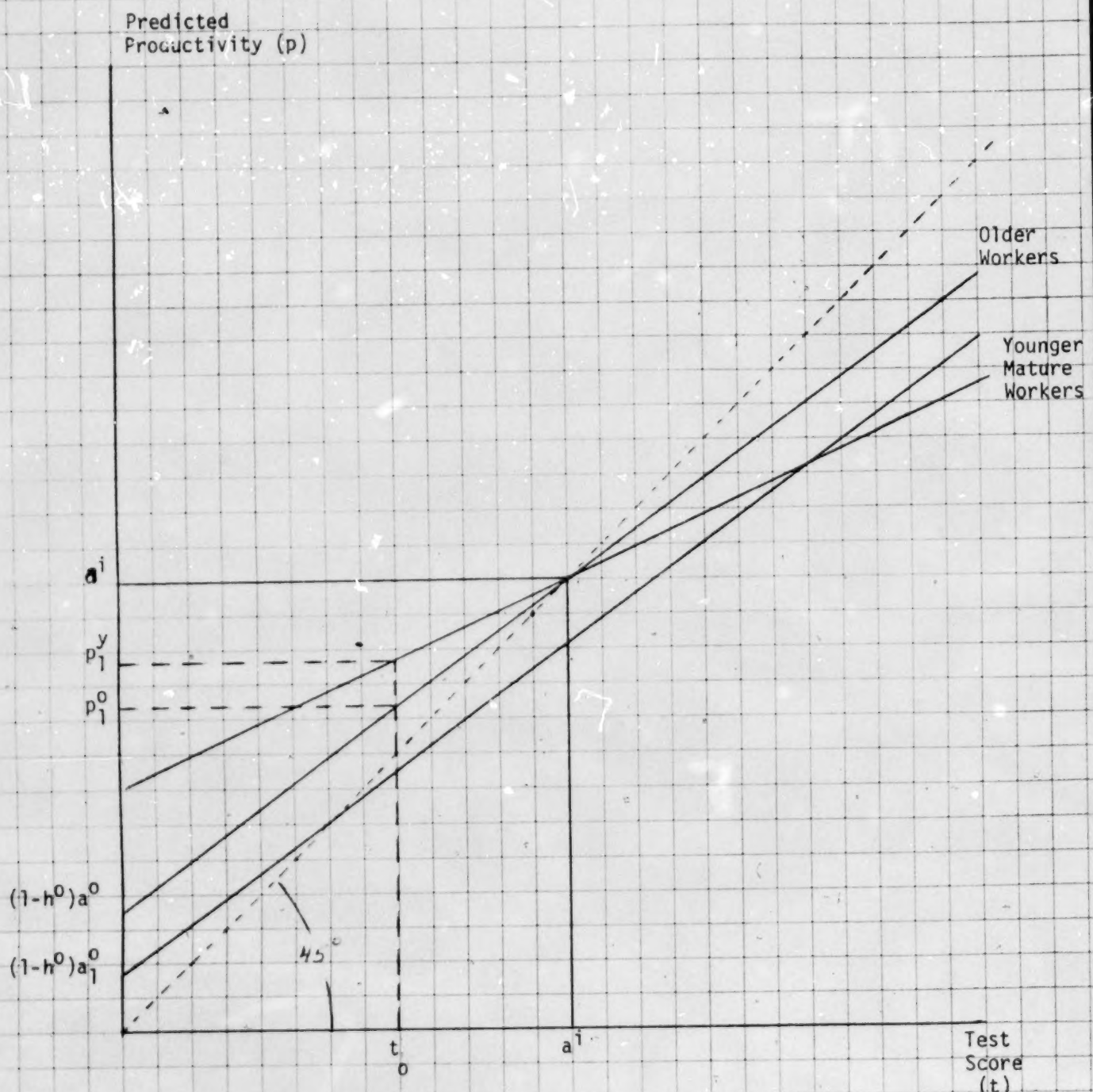
Finally, the mechanics of cyclical discrimination might operate as follows: As the labor market tightens (unemployment rates fall), after each round of tests and placements, less qualified lower test score applicants from both age groups would normally be found applying for the existing vacancies. While duration of unemployment would diminish for both groups, as well as the proportion of those with long spells of unemployment, the decrease would be relatively greater for the young who have equal test scores of the older worker $(t_o^o = t_o^y)$, but higher expected productivity, $(p_1^y > p_1^o)$. Presumably, the productivity variances of the two groups overlap, thus, neither group will be excluded from the hiring process altogether. Hence, a negative relationship between the unemployment rate and the ratio of older to younger unemployment duration proportions!

*Predictions for older applicants are more "reliable" than for younger applicants, as $(h) = r^2$, the coefficient of determination (Aigner and Cain, 1977).

If, there is a differential in productivity related characteristics such as educational attainment in favor of the younger workers (Berkowitz and Berkhauser, 1969), the older worker hiring function would evidently shift down from $(1-h^{O})a^{O}$ to a new intercept $(1-h^{O})a_{1}^{O}$, increasing the range over which differential treatment occurs. This seems the most plausible situation, with discrimination against the older worker occuring over the full cycle of economic activity, increasing as the labor market tightens.*

*Bergmann (1976) discusses the illegality of this form of discrimination on the basis of group characteristics under Equal Economic Opportunity legislation.

GRAPH I


Predicted
Productivity (p)
Older
Workers
Younger
Mature
Workers
a^i
p_1^y
p_1^o
$(1-h^o)a^o$
$(1-h^o)a_1^o$
45°
t_o
a^i
Test
Score
(t)

REFERENCE

Aigner, Denis and Glen Cain. "A Statistical Theory of Discrimination in Labor Markets." Industrial and Labor Relations Review, 30 (January 1977): 175-87.

Arrow, Kenneth. Some Models of Racial Discrimination in the Labor Market, Santa Monica: Rand, 1971.

Barrett, Nancy and Richard Morgenstern. "Why Do Blacks and Women Have High Unemployment Rates." Journal of Human Resources 9 (Fall 1974): 453-64.

Barth, Peter. "Unemployment and Labor Force Participation." Southern Journal of Economics 34 (January 1968): 375-82.

Becker, Gary S. The Economics of Discrimination, 2nd Ed. Chicago, University Of Chicago Press, 1971.

Bergman, Barbara. "Reducing the Pervasiveness of Discrimination." In Jobs for Americans, The American Assembly, Englewood Cliffs, New Jersey: Prentice-Hall, 1976. 120-141.

Berkowitz, Monroe and Richard Berkhauser. "Unemployment and the Middle-Aged Worker:* Testing a Cross-Sectional Model." Industrial Gerontology 3 (October 1969): 9-19.

Boglietti, G. "Discrimination Against the Older Worker and the Promotion of Equality of Opportunity." International Labor Review 110 (October 1974): 351-65.

Clark, Robert, Juanita Kreps and Joseph Spengler. "Economics of Aging: A Survey." Journal of Economic Literature 16 (September 1978): 919-62.

Dowd, James. "Aging as Exchange: A Preface to Theory." Journal of Gerontology 30 (1975) 584-94.

Echrenberg, R. and R. Oaxaca. "Unemployment Insurance, Duration of Unemployment and Subsequent Wage Gain." American Economic Review 66 (December 1976): 754-66.

Flanagan, Robert. "Discrimination Theory, Labor Turnover, and Racial Unemployment Differentials." Journal of Human Resources 13 (Spring 1978): 187-207.

Heneman III, Herbert, "Age Discrimination and Employment Testing." Industrial Gerontology (Spring 1974): 65-71.

Long, James. "Employment Discrimination in the Federal Sector." Journal of Human Resources II (Winter 1976): 86-97.

Malkiel, B.G. and J. A. Malkiel. "Male-Female Pay Differentials in Paraprofessional Employment." American Economic Review (September 1973):

McConnel, C.E. "Age Discrimination and the Employment Service - Another Look." Industrial Gerontology 4 (Summer 1977): 167-72.

Palmore, Erdman and Kenneth Manton. "Ageism Compared to Racism and Sexism." Journal of Gerontology 28 (1973): 363-69.

Perlman, Richard. Labor Theory, New York: John Wiley and Sons, Inc., 1969.

Phelps, Edmund. "The Statistical Theory of Racism and Sexism." American Economic Review 62 (September 1972): 658-61.

Sheppard, Harold. Research and Development Strategy on Employment Related Problems of Older Workers, Washington, D.C.: American Institute for Research, October 1977.

_____ and Harvey Belitsky. The Job Hunt, Baltimore, Md.: Johns Hopkins Press, 1966.

Siegel, Philip and Koncsol, Judith. "The Economics of Discrimination: Ageism." Economic Affairs 20 (August 1975): 334-341.

Sobel, Irvine and Hugh Folk. "Labor Market Adjustments by Unemployed Older Workers." Employment Policy and the Labor Market, Arthur M. Row, ed., Berkley: University of California Press, 1965.

Spence, Michael. "Job Market Signaling." Quarterly Journal of Economics 137 (August 1973): 355-74.

Stiglitz, Joseph. "Approaches to the Economics of Discrimination." American Economic Review 63 (May 1973): 287-95.

Thurow, Lester. Generating Inequality, New York: Basic Books, Inc., 1975.

U.S. Department of Labor. Employment Standards Administration. Age Discrimination in Employment Act of 1967, January 1977.

U.S. Department of Labor, Bureau of Labor Statistics. Employment and Earnings 7-25 (1958-1978): Tables A-3, A-18.

U.S. Department of Labor, Bureau of Labor Statistics. Monthly Labor Review 83-86 (January 1960-1964).

U.S. Congress. House Select Committee in Aging. Age and Sex Discrimination in Employment and Review of Federal Response to Employment Needs of the Elderly, Hearings. Testimony of (Michael Batten) before the Subcommittee on Retirement Income and Employment, 94th Cong., 1st Sess., Dec. 10, 1975.